504547020 09/14/2017

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4593728

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
MALCOLM FEATONBY	08/04/2017
DOUGLAS COTTON KURTZ	08/04/2017
PAOLO MAGGI	08/07/2017
UMESH CHANDANI	08/04/2017
JOHN MERRILL PHILLIPS JR	04/05/2017
YUXUAN LIU	08/04/2017
ADITHYA ADITHYA	08/07/2017
MIHIR SADRUDDIN SURANI	08/07/2017
ANDREA CURTONI	08/05/2017
NICHOLAS PATRICK WILT	09/12/2017

RECEIVING PARTY DATA

Name:	AMAZON TECHNOLOGIES, INC.	
Street Address:	PO BOX 81226	
City:	SEATTLE	
State/Country:	WASHINGTON	
Postal Code:	98108-1226	

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15470821

CORRESPONDENCE DATA

Fax Number: (512)853-8801

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent

using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 512-853-8800

Email: mmoffitt@intprop.com
Correspondent Name: ROBERT C. KOWERT

Address Line 1: PO BOX 398

Address Line 4: AUSTIN, TEXAS 78767-0398

ATTORNEY DOCKET NUMBER: 6924-45700

PATENT REEL: 043585 FRAME: 0805

504547020

ROBERT C. KOWERT		
/Robert C. Kowert/		
09/14/2017		
This document serves as an Oath/Declaration (37 CFR 1.63).		
.tif		
source=P37478-US_Assign-Dec#page2.tif		
source=P37478-US_Assign-Dec#page3.tif		
source=P37478-US_Assign-Dec#page4.tif		
source=P37478-US_Assign-Dec#page5.tif		
i.tif		
source=P37478-US_Assign-Dec#page7.tif		
source=P37478-US_Assign-Dec#page8.tif		
source=P37478-US_Assign-Dec#page9.tif		
source=P37478-US_Assign-Dec#page10.tif		
source=P37478-US_Assign-Dec#page11.tif		
source=P37478-US_Assign-Dec#page12.tif		
source=P37478-US_Assign-Dec#page13.tif		

source=P37478-US_Assign-Dec#page14.tif

PATENT REEL: 043585 FRAME: 0806

 U.S. Patent Appln. No. <u>15/470,821</u>
 Attorney Docket No. <u>6924-45700</u>

 Filing Date <u>March 27, 2017</u>
 Client Docket No. <u>P37478-US</u>

PARTIES TO THE ASSIGNMENT

Assignor(s):

MALCOLM FEATONBY
410 Terry Avenue North
Seattle, WA 98109-5210

DOUGLAS COTTON KURTZ 410 Terry Avenue North Seattle, WA 98109-5210

PAOLO MAGGI 410 Terry Avenue North Seattle, WA 98109-5210

UMESH CHANDANI 410 Terry Avenue North Seattle, WA 98109-5210

JOHN MERRILL PHILLIPS, Jr 410 Terry Avenue North Seattle, WA 98109-5210

Assignee: Amazon Technologies, Inc. PO Box 81226 Seattle, WA 98108-1226

AGREEMENT

YUXUAN LIU 410 Terry Avenue North Seattle, WA 98109-5210

ADITHYA BHAT 410 Terry Avenue North Seattle, WA 98109-5210

MIHIR SADRUDDIN SURANI 410 Terry Avenue North Seattle, WA 98109-5210

ANDREA CURTONI 410 Terry Avenue North Seattle, WA 98109-5210

NICHOLAS PATRICK WILT 410 Terry Avenue North Seattle, WA 98109-5210

WHEREAS, ASSIGNOR(S) (listed above) are inventor(s) of an invention entitled

"DYNAMIC INTERFACE SYNCHRONIZATION FOR VIRTUALIZED GRAPHICS PROCESSING" (Invention)

for which a non-provisional application for United States Letters Patent (Application):

was filed on March 27, 2017 and accorded U.S. Application No. 15/470,821; or

will be filed concurrently with the submission of this executed PATENT ASSIGNMENT for recordation.

ASSIGNOR(S) hereby authorizes and requests ASSIGNEE'S legal representatives, of

Page 1 of 14

U.S. Patent Appln. No. 15/470,821

Attorney Docket No. 6924-45700

Filing Date March 27, 2017

Client Docket No. P37478-US

Title of Invention: DYNAMIC INTERFACE SYNCHRONIZATION FOR VIRTUALIZED GRAPHICS

PROCESSING

Inventors: MALCOLM FEATONBY, DOUGLAS COTTON KURTZ, PAOLO MAGGI, UMESH CHANDANI, JOHN MERRILL PHILLIPS, YUXUAN LIU, ADITHYA BHAT, MIHIR SADRUDDIN

SURANI, ANDREA CURTONI, NICHOLAS PATRICK WILT

Meyertons, Hood, Kivlin, Kowert & Goetzel, P.C. associated with Customer No. 136594, to insert

in the header above and here in parentheses (U.S. Patent Application No. 15/470,821, filed

March 27, 2017) this application's U.S. application number and filing date, when known.

WHEREAS, ASSIGNEE, a corporation of the State of Nevada, is desirous of acquiring the

entire right, title and interest in and to the Invention and in and to any letters patent that may

be granted therefor in the United States and in any and all foreign countries.

NOW, THEREFORE, in exchange for good and valuable consideration, the receipt of

which is hereby acknowledged. ASSIGNOR(S) hereby sell, assign and transfer unto ASSIGNEE its

successors and assigns, the entire right, title and interest in and to said invention and any

improvements thereto, said Application and any and all letters patent which may be granted for

said Invention in the United States of America and its territorial possessions and in any and all

foreign countries, and in any and all provisional, divisions, reissues, re-examinations and

continuations thereof, including the right to file foreign applications directly in the name of

ASSIGNEE and to claim priority rights deriving from said Application to which said foreign

applications are entitled by virtue of international convention, treaty or otherwise, said

Invention, Application and all letters patent on said Invention to be held and enjoyed by

ASSIGNEE and its successors and assigns for their use and benefit and of their successors and

assigns as fully and entirely as the same would have been held and enjoyed by ASSIGNOR(S) had

this assignment, transfer and sale not been made. ASSIGNOR(S) hereby authorize and request

the Commissioner of Patents and Trademarks, as well as all other applicable patent offices

Page 2 of 14

PATENT **REEL: 043585 FRAME: 0808**

U.S. Patent Appln. No. 15/470,821

Attorney Docket No. 6924-45700

Filing Date March 27, 2017

Client Docket No. P37478-US

Title of Invention: DYNAMIC INTERFACE SYNCHRONIZATION FOR VIRTUALIZED GRAPHICS

PROCESSING

Inventors: MALCOLM FEATONBY, DOUGLAS COTTON KURTZ, PAOLO MAGGI, UMESH CHANDANI, JOHN MERRILL PHILLIPS, YUXUAN LIU, ADITHYA BHAT, MIHIR SADRUDDIN

SURANI, ANDREA CURTONI, NICHOLAS PATRICK WILT

throughout the world, to issue all letters patent on said Invention to ASSIGNEE. ASSIGNOR(S)

agree to execute all instruments and documents required for the making and prosecution of

applications for United States and foreign letters patent on said Invention, for litigation

regarding said letters patent, or for the purpose of protecting title to said Invention or letters

patent therefor.

AND ASSIGNOR(S) DOES HEREBY sell, assign, transfer, and convey to ASSIGNEE, its

successors, legal representatives, and assigns all claims for damages and all remedies arising out

of any violation of the rights assigned hereby that may have accrued prior to the date of

assignment to ASSIGNEE, or may accrue hereafter, including, but not limited to, the right to sue

for, collect, and retain damages for past infringements of said letters patent before or after

issuance.

AND ASSIGNOR(S) DOES HEREBY covenant and agree that ASSIGNOR(S) will

communicate to ASSIGNEE, its successors, legal representatives and assigns, any facts known to

ASSIGNOR respecting the Invention or said Application, and testify in any legal proceeding, assist

in the preparation of any other patent property relating to the Application and the Invention or

any improvements made thereto, sign/execute all lawful papers, provide all requested

documents, execute and make all rightful oaths and/or declarations in connection with the

Application and the Invention including any improvements made thereto, any patent

applications filed therefrom, and any continuing application filed from any of the

aforementioned applications, and generally do everything possible to aid ASSIGNEE, its

Page 3 of 14

PATENT **REEL: 043585 FRAME: 0809**

U.S. Patent Appln. No. 15/470,821

Attorney Docket No. 6924-45700

Filing Date March 27, 2017

Client Docket No. <u>P37478-US</u>

Title of Invention: <u>DYNAMIC INTERFACE SYNCHRONIZATION FOR VIRTUALIZED GRAPHICS PROCESSING</u>

Inventors: MALCOLM FEATONBY, DOUGLAS COTTON KURTZ, PAOLO MAGGI, UMESH CHANDANI, JOHN MERRILL PHILLIPS, YUXUAN LIU, ADITHYA BHAT, MIHIR SADRUDDIN SURANI, ANDREA CURTONI, NICHOLAS PATRICK WILT

successors, legal representatives and assigns, to obtain and enforce proper patent protection for the Invention in all countries. These provisions are binding upon ASSIGNOR's heirs, legal representatives, administrators, and assigns.

U.S. Patent Appln. No. 15/470,821 Attorney Docket No. 6924-45700 Filing Date March 27, 2017 Client Docket No. P37478-US Title of Invention: DYNAMIC INTERFACE SYNCHRONIZATION FOR VIRTUALIZED GRAPHICS **PROCESSING** Inventors: MALCOLM FEATONBY, DOUGLAS COTTON KURTZ, PAOLO MAGGI, UMESH CHANDANI, JOHN MERRILL PHILLIPS, YUXUAN LIU, ADITHYA BHAT, MIHIR SADRUDDIN SURANI, ANDREA CURTONI, NICHOLAS PATRICK WILT **DECLARATION** As a below named inventor, I hereby declare that: This declaration is directed to: the attached application; or \square United States Patent Application number 15/470,821 filed on March 27, 2017; or PCT International Application number ______ filed on _____. The above-identified application was made or authorized to be made by me. I believe that I am the original inventor or an original joint inventor of a claimed Invention in the application. I have reviewed and understand the contents of the above-identified application, and acknowledge the duty to disclose to the US Patent & Trademark Office all information known to me to be material to the patentability as defined in 37 CFR 1.56. I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 USC 1001 by fine or imprisonment of not more than five (5) years, or both. DocuSigned by: /Malcolm Featonby/ ~65273F05E0064EA... MALCOLM FEATONBY August 4, 2017 Date

PATENT ASSIGNMENT AND DECLARATION (37 CFR 1.63)

Attorney Docket No. 6924-45700

Filing Date March 27, 2017 Client Docket No. P37478-US Title of Invention: DYNAMIC INTERFACE SYNCHRONIZATION FOR VIRTUALIZED GRAPHICS **PROCESSING** Inventors: MALCOLM FEATONBY, DOUGLAS COTTON KURTZ, PAOLO MAGGI, UMESH CHANDANI, JOHN MERRILL PHILLIPS, YUXUAN LIU, ADITHYA BHAT, MIHIR SADRUDDIN SURANI, ANDREA CURTONI, NICHOLAS PATRICK WILT **DECLARATION** As a below named inventor, I hereby declare that: This declaration is directed to: the attached application; or \square United States Patent Application number 15/470,821 filed on March 27, 2017; or PCT International Application number ______ filed on _____. The above-identified application was made or authorized to be made by me. I believe that I am the original inventor or an original joint inventor of a claimed Invention in the application. I have reviewed and understand the contents of the above-identified application, and acknowledge the duty to disclose to the US Patent & Trademark Office all information known to me to be material to the patentability as defined in 37 CFR 1.56. I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 USC 1001 by fine or imprisonment of not more than five (5) years, or both. Mouglas Cotton teurty/ **DOUGLAS COTTON KURTZ** August 4, 2017 Date

U.S. Patent Appln. No. <u>15/470,821</u>	Attorney Docket No. <u>6924-45700</u>
Filing Date <u>March 27, 2017</u>	Client Docket No. <u>P37478-US</u>
Title of Invention: <u>DYNAMIC INTERFACE SYNCHRONIZATION PROCESSING</u>	ON FOR VIRTUALIZED GRAPHICS
inventors: MALCOLM FEATONBY, DOUGLAS COTTON KU CHANDANI, IOHN MERRILL PHILLIPS, YUXUAN LIU, ADIT SURANI, ANDREA CURTONI, NICHOLAS PATRICK WILT	IRTZ, PAOLO MAGGI, UMESH HYA BHAT, MIHIR SADRUDDIN
DECLARATION	
As a below named inventor, I hereby declare that:	
This declaration is directed to:	
the attached application; or	
United States Patent Application number 15/4	470,821 filed on March 27, 2017: or
PCT International Application number	filed on
I believe that I am the original inventor or an original joint application.	t inventor of a claimed invention in the
I have reviewed and understand the contents of the above acknowledge the duty to disclose to the US Patent & Tradime to be material to the patentability as defined in 37 CFF	emark Office all information known to
I hereby acknowledge that any willful false statement mad under 18 USC 1001 by fine or imprisonment of not more ti	
PAOLO MAGGI	
Aug 7, 2017	
Date	

Page 7 of 14

U.S. Patent Appln. No. 15/470,821 Attorney Docket No. 6924-45700 Filing Date March 27, 2017 Client Docket No. P37478-US Title of Invention: DYNAMIC INTERFACE SYNCHRONIZATION FOR VIRTUALIZED GRAPHICS **PROCESSING** Inventors: MALCOLM FEATONBY, DOUGLAS COTTON KURTZ, PAOLO MAGGI, UMESH CHANDANI, JOHN MERRILL PHILLIPS, YUXUAN LIU, ADITHYA BHAT, MIHIR SADRUDDIN SURANI, ANDREA CURTONI, NICHOLAS PATRICK WILT **DECLARATION** As a below named inventor, I hereby declare that: This declaration is directed to: the attached application; or \square United States Patent Application number 15/470,821 filed on March 27, 2017; or PCT International Application number ______ filed on _____. The above-identified application was made or authorized to be made by me. I believe that I am the original inventor or an original joint inventor of a claimed Invention in the application. I have reviewed and understand the contents of the above-identified application, and acknowledge the duty to disclose to the US Patent & Trademark Office all information known to me to be material to the patentability as defined in 37 CFR 1.56. I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 USC 1001 by fine or imprisonment of not more than five (5) years, or both. - DocuSianed by: Mush Chandani/ **UMESH CHANDANI** August 4, 2017 Date

PATENT ASSIGNMENT AND DECLARATION (37 CFR 1.63)

Attorney Docket No. 6924-45700

Filing Date March 27, 2017 Client Docket No. P37478-US Title of Invention: DYNAMIC INTERFACE SYNCHRONIZATION FOR VIRTUALIZED GRAPHICS **PROCESSING** Inventors: MALCOLM FEATONBY, DOUGLAS COTTON KURTZ, PAOLO MAGGI, UMESH CHANDANI, JOHN MERRILL PHILLIPS, YUXUAN LIU, ADITHYA BHAT, MIHIR SADRUDDIN SURANI, ANDREA CURTONI, NICHOLAS PATRICK WILT **DECLARATION** As a below named inventor, I hereby declare that: This declaration is directed to: the attached application; or \square United States Patent Application number 15/470,821 filed on March 27, 2017; or PCT International Application number ______ filed on _____. The above-identified application was made or authorized to be made by me. I believe that I am the original inventor or an original joint inventor of a claimed Invention in the application. I have reviewed and understand the contents of the above-identified application, and acknowledge the duty to disclose to the US Patent & Trademark Office all information known to me to be material to the patentability as defined in 37 CFR 1.56. I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 USC 1001 by fine or imprisonment of not more than five (5) years, or both. /John Merrill Phillips, Ir./ -076C7155FB95409... JOHN MERRILL PHILLIPS, Jr April 5, 2017 Date

U.S. Patent Appln. No. 15/470,821 Attorney Docket No. 6924-45700 Filing Date March 27, 2017 Client Docket No. P37478-US Title of Invention: DYNAMIC INTERFACE SYNCHRONIZATION FOR VIRTUALIZED GRAPHICS **PROCESSING** Inventors: MALCOLM FEATONBY, DOUGLAS COTTON KURTZ, PAOLO MAGGI, UMESH CHANDANI, JOHN MERRILL PHILLIPS, YUXUAN LIU, ADITHYA BHAT, MIHIR SADRUDDIN SURANI, ANDREA CURTONI, NICHOLAS PATRICK WILT **DECLARATION** As a below named inventor, I hereby declare that: This declaration is directed to: the attached application; or \square United States Patent Application number 15/470,821 filed on March 27, 2017; or PCT International Application number ______ filed on _____. The above-identified application was made or authorized to be made by me. I believe that I am the original inventor or an original joint inventor of a claimed Invention in the application. I have reviewed and understand the contents of the above-identified application, and acknowledge the duty to disclose to the US Patent & Trademark Office all information known to me to be material to the patentability as defined in 37 CFR 1.56. I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 USC 1001 by fine or imprisonment of not more than five (5) years, or both. DocuSigned by: Museuan liu/ ⊶67A1B1AFE2A7419. YUXUAN LIU 2017年8月4日 Date

Page 10 of 14

PATENT ASSIGNMENT AND DECLARATION (37 CFR 1.63)

Attorney Docket No. 6924-45700

Filing Date March 27, 2017 Client Docket No. P37478-US Title of Invention: DYNAMIC INTERFACE SYNCHRONIZATION FOR VIRTUALIZED GRAPHICS **PROCESSING** Inventors: MALCOLM FEATONBY, DOUGLAS COTTON KURTZ, PAOLO MAGGI, UMESH CHANDANI, JOHN MERRILL PHILLIPS, YUXUAN LIU, ADITHYA BHAT, MIHIR SADRUDDIN SURANI, ANDREA CURTONI, NICHOLAS PATRICK WILT **DECLARATION** As a below named inventor, I hereby declare that: This declaration is directed to: the attached application; or \square United States Patent Application number 15/470,821 filed on March 27, 2017; or PCT International Application number ______ filed on _____. The above-identified application was made or authorized to be made by me. I believe that I am the original inventor or an original joint inventor of a claimed Invention in the application. I have reviewed and understand the contents of the above-identified application, and acknowledge the duty to disclose to the US Patent & Trademark Office all information known to me to be material to the patentability as defined in 37 CFR 1.56. I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 USC 1001 by fine or imprisonment of not more than five (5) years, or both. DocuSigned by: /adithya Bhat/ ADITHYA ADITHYA August 7, 2017 Date

PATENT ASSIGNMENT AND DECLARATION (37 CFR 1.63)

Attorney Docket No. 6924-45700

Filing Date March 27, 2017 Client Docket No. P37478-US Title of Invention: DYNAMIC INTERFACE SYNCHRONIZATION FOR VIRTUALIZED GRAPHICS **PROCESSING** Inventors: MALCOLM FEATONBY, DOUGLAS COTTON KURTZ, PAOLO MAGGI, UMESH CHANDANI, JOHN MERRILL PHILLIPS, YUXUAN LIU, ADITHYA BHAT, MIHIR SADRUDDIN SURANI, ANDREA CURTONI, NICHOLAS PATRICK WILT **DECLARATION** As a below named inventor, I hereby declare that: This declaration is directed to: the attached application; or \square United States Patent Application number 15/470,821 filed on March 27, 2017; or PCT International Application number ______ filed on _____. The above-identified application was made or authorized to be made by me. I believe that I am the original inventor or an original joint inventor of a claimed Invention in the application. I have reviewed and understand the contents of the above-identified application, and acknowledge the duty to disclose to the US Patent & Trademark Office all information known to me to be material to the patentability as defined in 37 CFR 1.56. I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 USC 1001 by fine or imprisonment of not more than five (5) years, or both. Milis Sadruddin Surani/ ·A179CA46B297451... MIHIR SADRUDDIN SURANI August 7, 2017 Date

Page 12 of 14

U.S. Patent Appln. No. <u>15/470,821</u>	Attorney Docket No. <u>6924-45700</u>
Filing Date March 27, 2017	Client Docket No. <u>P37478-U\$</u>
Title of Invention: DYNAMIC INTERFACE SYNCHRONIZATION FOR PROCESSING	R VIRTUALIZED GRAPHICS
Inventors: MALCOLM FEATONBY, DOUGLAS COTTON KURTZ, I CHANDANI, JOHN MERRILL PHILLIPS, YUXUAN LIU, ADITHYA E SURANI, ANDREA CURTONI, NICHOLAS PATRICK WILT	
DECLARATION	
As a below named inventor, I hereby declare that:	
This declaration is directed to:	
the attached application; or	
☑ United States Patent Application number 15/470,8	<u>21</u> filed on <u>March 27, 2017</u> ; or
PCT International Application number	filed on
The above-identified application was made or authorized to be I believe that I am the original inventor or an original joint inve	
I believe that I am the original inventor or an original joint inve application.	ntor of a claimed Invention in the
I have reviewed and understand the contents of the above-ide	
acknowledge the duty to disclose to the US Patent & Trademar	
me to be material to the patentability as defined in 37 CFR 1.51	b.
	The second of th
I hereby acknowledge that any willful false statement made in	
under 18 USC 1001 by fine or imprisonment of not more than i	five (5) years, or both.
Ah. Oli	
ANDREA CURTONI	
<u> </u>	
Date	

U.S. Patent Appln. No. 15/470.821 Attorney Docket No. 6924-45700 Filing Date March 27, 2017 Client Docket No. P37478-US Title of Invention: DYNAMICINTERFACE SYNCHRONIZATION FOR VIRTUALIZED GRAPHICS PROCESSING Inventors: MALCOLM FEATONBY, DOUGLAS COTTON KURTZ, PAOLO MAGGI, UMESH CHANDANI, JOHN MERRILL PHILLIPS, YUXUAN LIU, ADITHYA BHAT, MIHIR SADRUDDIN SURANI, ANDREA CURTONI, NICHOLAS PATRICK WILT DECLARATION As a below named inventor, I hereby declare that: This declaration is directed to: the attached application; or United States Patent Application number 15/470,821 filed on March 27, 2017; or PCT International Application number _______filed on ______. The above-identified application was made or authorized to be made by me. I believe that I am the original inventor or an original joint inventor of a claimed invention in the application. I have reviewed and understand the contents of the above-identified application, and acknowledge the duty to disclose to the US Patent & Trademark Office all information known to me to be material to the patentability as defined in 37 CFR 1.56. I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 USC 1001 by fine or imprisonment of not more than five (5) years, or both. NICHOLAS PATRICK WILT 12342017

Page 14 of 14

RECORDED: 09/14/2017